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EFFECTS OF A VIDEOTAPE FEEDBACK PACKAGE ON THE PEER INTERACTIONS OF CHILDREN WITH SERIOUS BEHAVIORAL AND EMOTIONAL CHALLENGES

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Peer interactions are among the greatest challenges experienced by children who have severe emotional and behavioral problems. This study evaluated an intervention package designed to increase the ratio of these children's desirable to undesirable interactions. The package included three principal components: (a) observation of videotapes following regularly scheduled peer activity sessions; (b) self-evaluation of the children's peer interactions observed on the videotapes; and (c) delayed feedback and reinforcement for desirable peer interactions. Five students from two elementary schools participated. Multiple baseline designs and one reversal were used to evaluate the effects of the intervention package. The results showed that the intervention produced lower levels of undesirable peer interactions and higher ratios of desirable to undesirable interactions for all participants. The results are discussed in regard to their conceptual and applied implications and in terms of specific directions for future research.

DESCRIPTORS: social behavior, peer interactions, self-evaluation, videotape feedback, severe emotional disturbance

Interacting with peers in a desirable manner is a significant deficiency for students who are identified as having emotional and/or behavioral challenges (Gresham, 1982). Problems in this area often lead to referral to special education and contribute to students remaining in atypical educational environments (Kauffman, Cullinan, & Epstein, 1987; Mattison, Humphrey, Kales, & Wallace, 1986). The difficulties these students exhibit in getting along with their classmates require school systems to provide much more structure and supervision than is ordinarily needed for children in regular classes. Therefore, classroom programs for students with emotional and behavioral challenges frequently include tangible reinforcement of desirable peer interactions as well as explicit training in the area of social skills (e.g., Hollinger, 1987; Kauffman, 1989).

Although externally managed reinforcement strategies have clearly demonstrated effectiveness, they have also been associated with several limitations (G. Dunlap, in press; Lepper & Green, 1974) that may be especially salient for students who need to learn more positive patterns of social interaction. Knitzer, Steinberg, and Fleisch (1990), in a study of school programs for children with behavior disorders, argued that such programs are typically coercive and overly controlling, leaving little room for students to develop their own abilities to form friendships or to experience natural kinds of school routines and peer contact. Concerns regarding externally controlled contingency management programs include problems with generalization associated with the restricted stimulus control that teachers acquire when dispensing reinforcers (G. Dunlap, in press). Another point that pertains especially to the area of peer relations is that external

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contingencies, particularly when scheduled in a relatively dense manner and administered by adult supervisors, can be viewed as interfering with the ongoing flow of student-to-student interactions.

One set of strategies gaining popularity and research support involves self-management (Nelson, Smith, Young, & Dodd, 1991; O'Leary & Dubey, 1979; Rosenbaum & Drabman, 1979). Self-management approaches, including self-monitoring and self-evaluation, have been shown to be effective and to have a number of advantages when used with a variety of target behaviors and populations (L. Dunlap, Dunlap, Koegel, & Koegel, 1991). For example, Christie, Hiss, and Lozanoff (1984) used self-monitoring techniques to increase attention and decrease inappropriate classroom behaviors of 3 elementary school children with behavior problems. Rhode, Morgan, and Young (1983) used self-monitoring to facilitate generalization, as did Koegel and Koegel (1990) and Warrenfeltz et al. (1981). Thus, self-monitoring strategies can be helpful in improving behavior, in reducing the salience of external management, and in transferring effective behavioral control to different environments. Still, because most self-monitoring strategies require immediate self-recording of target behaviors, it can be argued that such recording might interfere with the ongoing natural flow of peer interactions. In those situations in which peer interactions are the principal concern, some modifications in the self-monitoring procedures might be in order.

The use of videotape may be one means for incorporating self-monitoring and self-evaluation without disturbing the course of peer interactions. In research relevant to this possibility, several authors (e.g., Esveldt, Dawson, & Forness, 1974; Osborne, Kiburz, & Miller, 1986) have used delayed videotaped feedback to improve the responding of behaviorally disordered children. In a recent study, Walther and Beare (1991) had a 10-year-old student review videotapes of his on-task performance in a classroom for children with emotional and behavioral disorders. The student reviewed the tapes daily, recorded his own behavior, and received feedback and discussion regarding the appropriateness of his behavior from his teacher. The data showed a clear functional relationship between this videotape feedback intervention and improved on-task responding in the classroom.

The present study explored the possibility that a procedure similar to that of Walther and Beare (1991) could be useful for improving the peer interactions of students with emotional and behavioral challenges. Specifically, we were interested in the peer interactions of these children when they were interacting without direct adult involvement and without immediate contingencies to guide their behavior. Therefore, we evaluated the effects of a package intervention on the peer interactions of students with emotional and behavioral challenges when they were left to interact during an activity period in the classroom. The intervention included videotape feedback, self-evaluation, and delayed reinforcement.

METHOD

Participants and Setting

The 5 participants were boys ranging in age from 11 to 13 years and were enrolled in Grades 4, 5, and 6. All of the students were identified as having behavioral and emotional challenges by the public school system and were enrolled in self-contained classrooms serving students with "severe emotional disturbance." The students were selected for participation in the current study because they exhibited difficulties with peer relations. Specific student information is provided in Table 1.

The study took place at two separate public elementary schools. Two of the students (Sam and Dave) were enrolled in one school and the other 3 students attended the second school. Data were collected during activity sessions held each day in the students' special education classrooms. During the videotape feedback phase, daily sessions were held in a small room of the school that had accessible video equipment on which the children could observe the previous day's sessions.

Behavioral Definitions

All verbal and nonverbal behaviors directed toward peers were recorded as a peer interaction. A

Table 1
Student Characteristics

Name	Age (years)	WISC-R full scale	Classification/presenting problems	Current medications
Sam	12	92	emotionally handicapped; excessive crying and mood swings, defiance, self-abuse	none
Dave	12	70	SED[a], educably mentally handicapped, persecution disorder; inattentive	none
Adam	11	64	SED, ADHD[b]; impulsivity, excessive withdrawal	Desipramine 100 mg daily
Dale	13	80	SED; disruptions, noncompliance, aggression	Mellaril 30 mg Noripramine 30 mg daily
Mike	12	114	SED; easily distractable	Ritalin 30 mg daily

[a] Severe emotional disturbance.
[b] Attention deficit hyperactivity disorder.

new peer interaction was counted when (a) 3 s or more elapsed in verbal or nonverbal behavior between 2 children or (b) verbal or nonverbal behavior was directed to another child. All peer interactions were categorized as either desirable or undesirable. *Desirable peer interactions* were defined as any verbal or nonverbal interaction that was positive or neutral and appropriate to the context of a school environment. Desirable verbal interactions included statements that were validating, such as praise statements (e.g., "Good job," "You're going to win," "Good try"), statements intended to help a peer successfully complete his or her turn in the game being played (e.g., "You get another turn," "Move three more spaces"), and statements or questions that were neutral (e.g., "How many cards do you have left?," "I want to buy Boardwalk," "I like this game, do you?"). Desirable nonverbal interactions included validating gestures (e.g., thumbs up signal) or supportive touches (e.g., high fives, patting a peer on the shoulder). *Undesirable interactions* were defined as any verbal or nonverbal interactions that were inappropriate in the school context. Undesirable verbal interactions included statements that were derogatory or insulting (e.g., "You're stupid," "You don't know how to play this game"), ordered a peer to do something (e.g., "Pay attention!" "Gimme that," "Put that down") in a demeaning or demanding manner and/or with a volume noticeably louder and harsher than normal, or inappropriate to the context (e.g., sexual in content). Undesirable peer interactions also included insulting or derogatory gestures (e.g., sticking one's tongue out, "shooting the bird") or aggressive behavior (e.g., grabbing materials from a peer, hitting, slapping, or kicking a peer, striking out at another).

Design, Measurement, and Reliability

Multiple baseline designs were used in each school with the intervention replicated across students. In addition, a withdrawal phase (i.e., return to baseline) was implemented for one student. Peer interactions (desirable and undesirable) comprised the dependent variable. Frequency counts were used to assess the number of interactions during daily activity sessions. Frequency counts were used because the interactions were discrete events that were brief (tending to persist for less than 3 to 5 s). Six research assistants collected the data. Each observer was familiar with the behaviors of students with emotional challenges and had extensive prior experience with data collection. Before beginning the study, each observer practiced with the behavioral definitions during nonexperimental observations until an 80% level of interobserver agreement was reached for each of the behavioral definitions. Throughout each session of baseline and intervention, data were collected on site for at least 1 participant. When sufficient observers were not available on site, the data for the remaining participant(s) were scored from videotapes following the activity session. Stu-

dents observed on site were randomly rotated throughout the study, and interobserver agreement was roughly equivalent for data collected on site and from tape.

Interobserver agreement was assessed during 38% of the sessions across all phases and students. Reliability was calculated by dividing the smaller frequency by the larger frequency. Mean reliability for desirable peer interactions for Sam, Dave, Mike, Dale, and Adam was 81% (range, 68% to 98%), 91% (76% to 100%), 90% (88% to 98%), 84% (67% to 100%), and 90% (76% to 99%), respectively. Mean reliability for undesirable peer interactions was 86% (50% to 100%), 85% (33% to 100%), 73% (0 to 100%), 77% (57% to 100%), and 86% (50% to 100%), respectively. Each individual session with a mean of less than 50% agreement for undesirable peer interactions contained three or fewer occurrences.

To evaluate more precisely the extent to which data collectors agreed on their observations, 20% of the sessions were rescored from the videotapes using an interval system in which observers recorded the occurrence or nonoccurrence of the dependent variables during consecutive 1-min intervals. Reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements. Mean reliability for total agreement on desirable peer interactions was 96%, with occurrence and nonoccurrence reliability for this variable being 97% and 78%, respectively. For undesirable peer interactions, mean reliability for total agreement was 88%; occurrence reliability was 84% and nonoccurrence reliability was 86%. Eighty-eight percent of all of the reliability calculations revealed agreement of at least 75%, and very few differences in agreement percentages occurred across children or phases.

Procedure

Throughout the baseline and video feedback phases, 20-min activity sessions were held daily. All of the students enrolled in the classrooms (except 1 student whose parents did not provide permission) participated in these sessions. The activities provided during these sessions consisted of board games (e.g., Monopoly®, Chinese checkers) or card games (e.g., Uno®, old maid) randomly selected immediately prior to the session. The group in School 1 typically consisted of 7 or 8 students. Because of a high absentee rate, the number of students in School 2's group varied throughout baseline and video feedback phases, ranging from 3 to 8. However, group membership did not vary systematically with phase changes.

All activity sessions during baseline and intervention were videotaped using a portable camcorder stationed on a tripod in the corner of the classroom. To desensitize students to the camera's presence, videotaping began 2 weeks prior to baseline.

All of the sessions were supervised from a distance of approximately 3 m by an adult who provided instructions or rule clarification when necessary. Few adult interactions occurred during any of the activity sessions, and all interactions with the target students were in response to occasional questions pertaining to the game being played. Although the adult was prepared to intervene if students became physically aggressive or if arguments continued for more than 1 min, intervention was never necessary.

During the video feedback phase, individual video feedback sessions were held daily for each of the target students. These sessions occurred about 4 hr prior to the activity sessions for the participants in School 1, and 1 hr to immediately before the activity sessions in School 2. The order in which students participated in video feedback sessions was randomly rotated. Feedback sessions were conducted by an adult facilitator. One facilitator provided feedback for both of the students in School 1, and three facilitators were used in an alternating manner for the 3 students in School 2.

Videotape feedback sessions ranged in duration from approximately 10 to 20 min. During the initial session for each participant, the facilitator asked the student to describe and provide several examples of desirable and undesirable peer interactions. The facilitator also provided several examples, asking the student to differentiate desirable

interactions from undesirable ones. All students were able to provide accurate examples and to classify correctly the facilitator's examples during the first session.

During each of the daily video feedback sessions, students viewed approximately 10 min of the videotape from the activity session held the previous day. The videotape was stopped following each 30-s interval and students were asked to respond to the statement, "I had desirable peer interactions," with a "yes" or "no" response and to record that response on a self-assessment recording sheet. "Yes" was to be marked only if no undesirable interactions occurred during the 30-s interval. When a "no" response was marked, the facilitator asked the student what else he could have done in that situation or what would have been a more appropriate interaction. Because students consistently provided adequate suggestions for alternative desirable behaviors and because undesirable interactions reached relatively low levels, this questioning process was faded within 3 or 4 days so that it occurred only once or twice per session.

The facilitator simultaneously viewed the videotape with each of the students and also recorded the occurrence of desirable and undesirable peer interactions. Following each 30-s segment, the facilitator compared his or her response to the student's response. The video feedback sessions continued with feedback occurring every 30 s throughout all sessions in School 2. The students in School 1 also continued to receive their feedback in accordance with the 30-s segments. However, because intervention in this school continued for a longer period and because of the consistently high level of student accuracy, the comparisons with the facilitator's recordings were gradually faded until feedback was given only once every 5 min (i.e., twice per session).

During the video feedback phase, students were awarded 1 point for exhibiting desirable peer interactions throughout each 30-s interval. In addition, they were awarded a point for accurately evaluating their behavior (i.e., matching the facilitator's response). If students earned 80% or more of the points possible during a session (70% in School 2), the points could be exchanged for a small reward (e.g., a pencil, a balloon, a piece of candy) at the end of the feedback session.

RESULTS

The results for the participants in Schools 1 and 2 are shown in Figures 1 and 2, respectively. The frequency of Sam's undesirable interactions was variable during baseline, ranging from 8 to 61 undesirable interactions per session (Figure 1). Following introduction of the video feedback phase, undesirable interactions decreased and remained at low levels throughout this phase. When baseline procedures were reintroduced, the frequency of undesirable peer interactions again increased, resulting in levels similar to the initial baseline. Reintroduction of video feedback produced low levels of undesirable interactions. The overall mean frequency of Sam's undesirable peer interactions per session was 34 during baseline and 6 during intervention. In contrast, desirable peer interactions were not reduced during the videotape feedback phases and, instead, showed a generally increasing trend over the course of the investigation.

Similar results are evident for the other students. The video feedback procedures resulted in reduced levels of undesirable peer interactions for all of the students. Dave, Dale, and Adam showed rapid reductions in undesirable interactions following introduction of the video feedback procedures, whereas Mike showed gradual but steady decreases. The frequency of desirable peer interactions, although variable for all students in all phases, tended to show increasing trends in the video feedback phases. This indicates that the total number of peer interactions remained fairly stable across the duration of the study.

Data from the self-assessment evaluation forms, completed during the daily video feedback sessions, revealed high agreement between the students and the facilitator on occurrences and nonoccurrences of desirable interactions. Correct matching between the students and the facilitator occurred during at

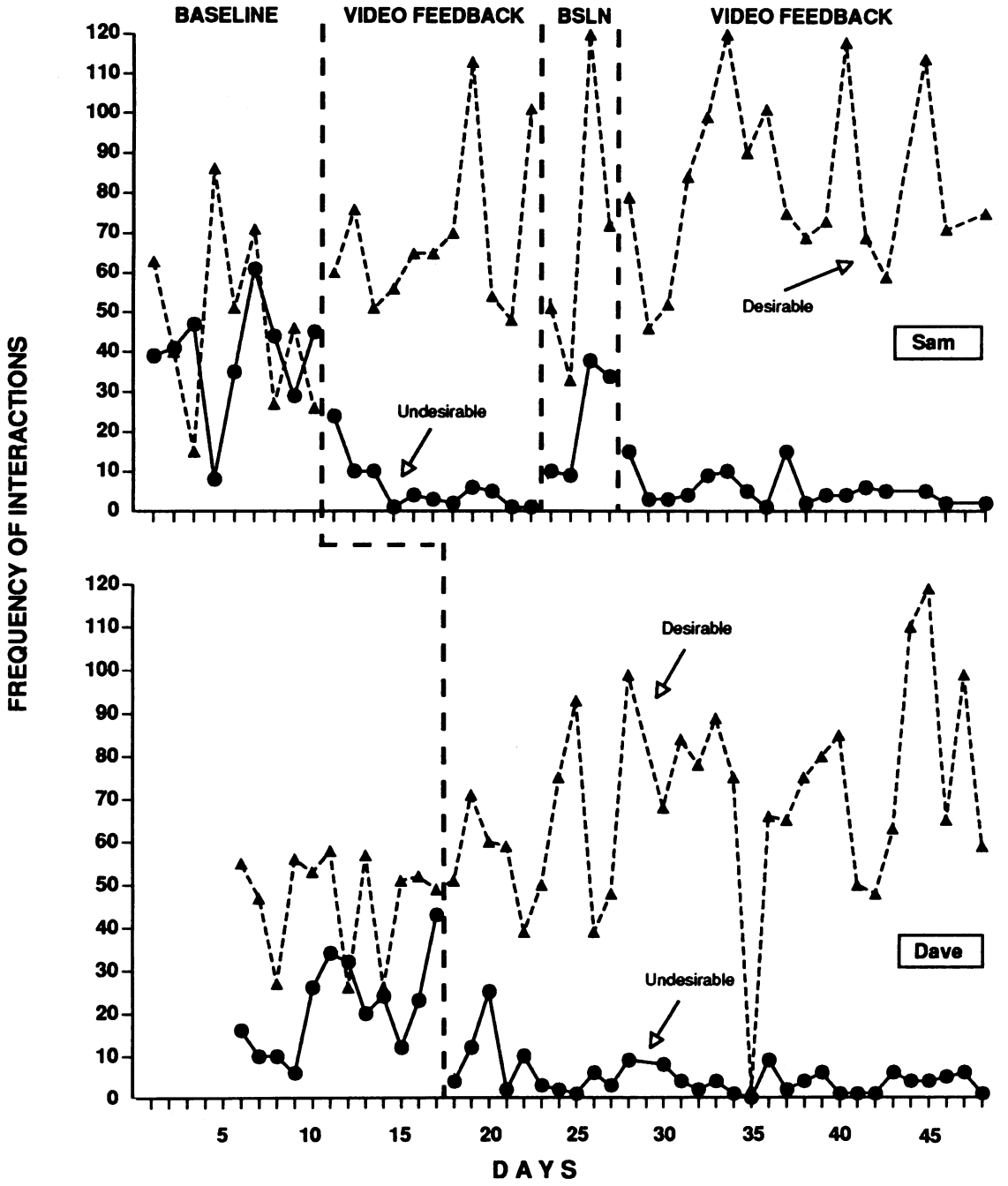

Figure 1. Frequency of desirable (dashed lines) and undesirable (solid lines) peer interactions during 20-min activity sessions for the 2 students in School 1.

least 75% of the intervals for each session, with the exception of one session for Sam in which correct matching occurred on 60% of the intervals. The mean percentage of agreements across all sessions was 90% or higher for all students.

DISCUSSION

This study demonstrated the efficacy of a video feedback package for increasing the ratio of desirable to undesirable peer interactions of students

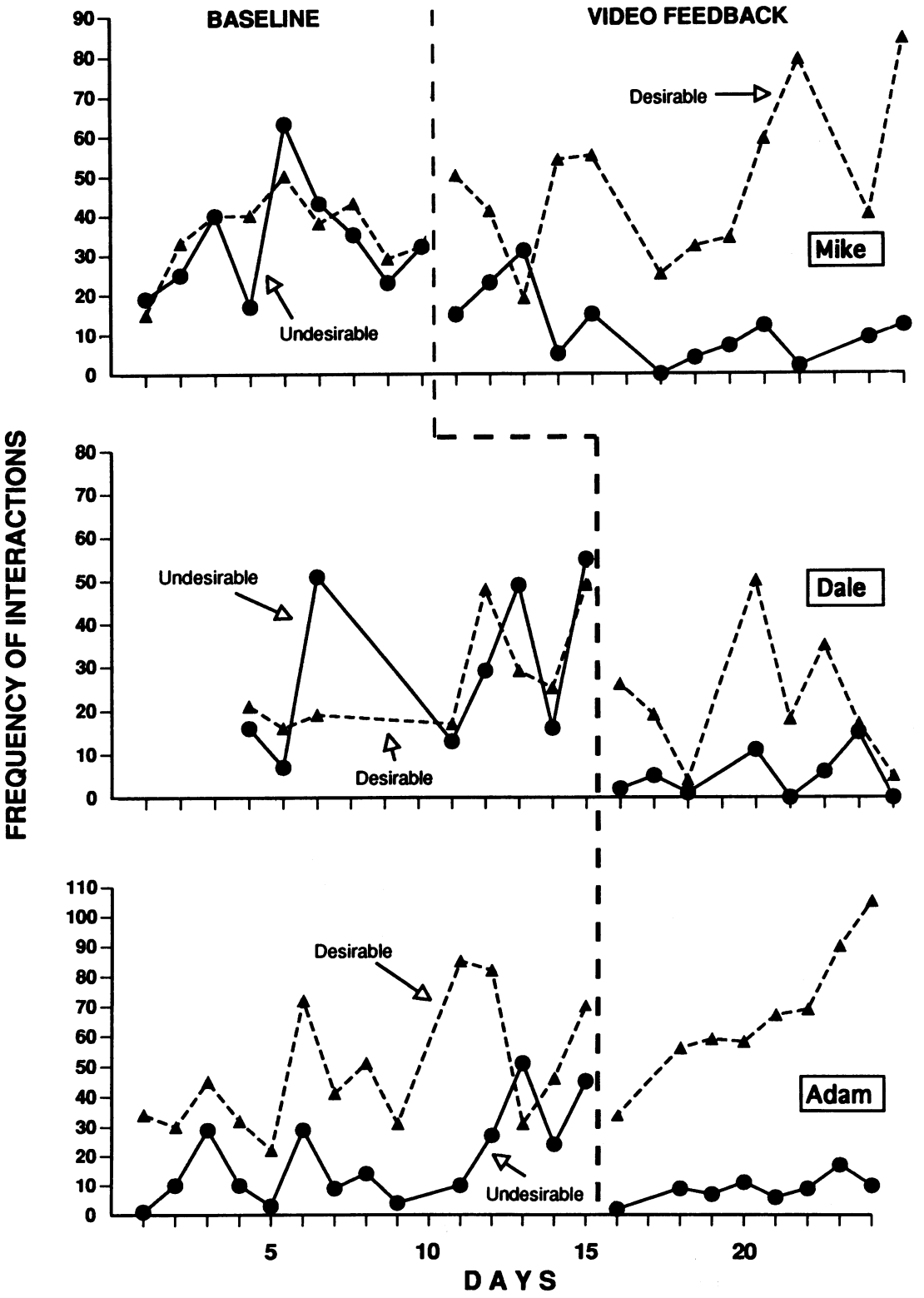

Figure 2. Frequency of desirable (dashed lines) and undesirable (solid lines) peer interactions during 20-min activity sessions for the 3 students in School 2.

with behavioral and emotional challenges in two elementary schools. Several explanations for the effectiveness of the procedures are plausible. It is possible that the findings are partly attributable to delayed reinforcement contingencies in place during the video feedback sessions. While students viewed the videotapes, verbal feedback was provided as part of the facilitator matching procedure. In addition, reinforcement was provided for accurate self-assessment as well as for exhibiting desirable peer interactions. At the same time, however, it is plausible that the feedback procedures served an antecedent function, operating as discriminative stimuli for the students' performance that occurred in activity sessions less than 4 hr later.

It is also possible that the procedures served to establish rule-governed behavior (e.g., Baldwin & Baldwin, 1986; Deacon & Konarski, 1987). Rule-governed behavior develops when rules are provided or self-generated and reinforcement is provided for following those rules. During the video feedback phase, students were asked to assess the appropriateness of their peer interactions. Following this assessment, feedback was provided through matching with the facilitator's evaluations. It seems reasonable that these procedures may have led the students to develop rules defining the parameters of acceptable and unacceptable peer interactions. For example, possible rules a student may have developed include "I cannot curse at a classmate," and "I must have mostly desirable interactions." Through daily feedback sessions, such rules would have been asserted and reinforced numerous times and on an ongoing basis. However, this explanation is only speculative. A rigorous evaluation of this possibility would require additional methodological features, including probes for generalization across settings and a longer and more detailed assessment of maintenance.

The effectiveness of the procedures may be related to a large and growing literature showing advantages of self-evaluation. Self-management strategies have been shown to produce greater generalization (Turkewitz, O'Leary, & Ironsmith, 1975) and to require less adult supervision (Koegel & Koegel, 1988) than more traditional behavior management procedures. The daily activity sessions were relatively unstructured, with little adult direction or guidance. The self-management procedures may have been well suited to this type of setting.

Several particular advantages of providing feedback via videotape have been described in the literature. Booth and Fairbank (1984) suggested that videotapes may provide individuals with more accurate feedback about their behavior. Videotapes also provide a permanent record of behavior; this tends to limit arguments about what transpired, and self-assessment can occur out of the context of any conflicts that may have occurred during taping (Walther & Beare, 1991). Anecdotal information supports these advantages. For example, in the early phases of the study, there were several occasions when Adam denied engaging in an undesirable peer interaction. At these times, the videotape segment was replayed so he could observe the behavior in question. Subsequent denials occurred with far less frequency.

Some limitations in this study should be noted. Because the procedures were introduced as a package, it is not possible to delineate the particular contributions of each separate component. Further, it is possible that the package might have been more complex than necessary. For example, a simple, teacher-mediated feedback condition could have resulted in improved peer interactions without the video feedback or self-evaluation. Although this possibility was not addressed experimentally, several previous studies have suggested that a combination of procedures may be more effective than a single intervention. For example, Esveldt et al. (1974) demonstrated the superiority of a video feedback and discussion package relative to discussion alone, videotaping alone, and videotape viewing alone. Although the present investigation did not include a similar component analysis, it is unlikely that single component manipulations would have been as influential as the entire video feedback package. Nevertheless, to enhance procedural efficiency and conceptual interpretation, future research should isolate the relative contributions of the various feedback components.

Another consideration is the context in which the study was conducted. All of the students participating in the daily activity sessions were iden-

tified as having serious emotional and behavioral challenges, and their education was provided in self-contained classrooms for students with severe emotional disturbance. Studies have suggested that this population may exhibit very different social and emotional difficulties and interaction skills than their nondisabled peers (Kauffman et al., 1987; Mattison et al., 1986). It also may be assumed that the frequency of undesirable peer interactions may be higher when students interact only with peers who share such difficulties. In other words, it is possible that the students would have shown fewer problems had they interacted with peers without serious emotional and behavioral challenges. This may be illustrated by Adam's data. The frequency of this student's undesirable peer interactions increased at about the time Mike began his individualized feedback sessions. Observers noted that Adam appeared to be envious of Mike's participation and that this may have increased Adam's undesirable statements to his peers. Although such phenomena may also occur with typical students, future research might identify different patterns of interactions when students are involved in more integrated settings.

The context in which this study was conducted also influenced the definition of the dependent variables. Even though the activities included only peers, the setting was an elementary school classroom and, therefore, some kinds of interactions (e.g., sexual topics) common in unrestricted interactions were considered to be undesirable in this context. The social validity (Schwartz & Baer, 1991; Wolf, 1978) of the dependent variables and, indeed, of the results could be a topic for further consideration and research.

This study suggests that video feedback can be an effective tool to improve the social interactions of students with emotional difficulties. This may be of particular importance in light of the limited efficacy of more traditional techniques (Esveldt et al., 1974). Because the procedures included self-assessment and feedback particular to each student's needs, they may have had advantages over more traditional social skills curricula. Although this study provided individualized feedback, it is possible that group or peer feedback could be provided in a similar way, thus making the procedures more suitable in typical classroom settings.

The procedures in this study were effective even though feedback and reinforcement were delayed by as much as 24 hr. This may be important in relationship to their general utility. It is important to develop behavior management procedures that are nonstigmatizing and nonintrusive to students with disabilities, particularly when they are placed in integrated settings. In this study, the feedback procedures were conducted outside the daily activity sessions, causing minimal (if any) intrusion in the ongoing activity. Although videotaping itself may be considered intrusive, it can be conducted in a way that minimizes intrusiveness. For example, at School 1 the camcorder remained in the corner of the classroom throughout the school day. After a few weeks, the students no longer questioned whether recording was taking place.

It is important that social skills instruction enhance the ability of students to acquire, maintain, and generalize those skills. The daily activity sessions, although conducted in a segregated classroom, may have simulated a situation more typical of those experienced outside the generally highly structured classroom setting. Because little adult guidance or interaction took place during these sessions, they may have represented a generalized setting in which individuals must apply skills learned elsewhere. For this reason, it is possible that the procedures used in this setting may have enhanced generalization. Although no data were collected in other settings, further research in this area should address these generalization issues. If generalized improvement in peer interactions were to result from this intervention package, the procedures would have much greater practical importance and the potential to offer widespread benefits for students who have problems with peer interactions.

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